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THESIS

MEASURES OF READINESS IN NAVY MEDICINE: PROBLEMS AND POLICY DEVELOPMENT AFTER THE COLD WAR

by

Lawrence M. Bateman

September 1999

Thesis Advisor: Richard Doyle
Associate Advisor: Benjamin Roberts

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ABSTRACT *(maximum 200 words)* This thesis attempts to map the changes to guidance and policy that have had an effect on Navy medicine's readiness program. Documents reviewed for this thesis include but are not limited to DOD, GAO, and service IG reports, studies by the RAND Corporation, Center for Naval Analysis, Institute for Defense Analysis, and Logistic Management Institute, congressional testimony, and relevant DOD and Navy directives and manuals. Interviews and electronic mail with officials associated with Navy medicine include Deputy Commander of MED-27, J-4 Medical Readiness Division Chief, RROC director, N931 Analyst, and DMRTI. Measuring medical readiness is a large and complex issue and the military medical systems use a variety of data and models in an attempt to measure readiness. The conclusions of this thesis are that many groups and individuals are providing guidance for Navy medical readiness and changes have been produced at a rapid rate. Considerable uncertainty and variety remains concerning who and how we need to train for wartime medical care. To address these problems, Navy medicine created the RROC and its subordinate task forces.

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MEASURES OF READINESS IN NAVY MEDICINE: PROBLEMS AND POLICY DEVELOPMENT AFTER THE COLD WAR

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Submitted in partial fulfillment of the
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ABSTRACT

This thesis attempts to map the changes to guidance and policy that have had an effect on Navy medicine's readiness program. Documents reviewed for this thesis include but are not limited to DOD, GAO, and service IG reports, studies by the RAND Corporation, Center for Naval Analysis, Institute for Defense Analysis, and Logistic Management Institute, congressional testimony, and relevant DOD and Navy directives and manuals. Interviews and electronic mail with officials associated with Navy medicine include Deputy Commander of MED-27, J-4 Medical Readiness Division Chief, RROC director, N931 Analyst, and DMRTI. Measuring medical readiness is a large and complex issue and the military medical systems use a variety of data and models in an attempt to measure readiness. The conclusions of this thesis are that many groups and individuals are providing guidance for Navy medical readiness and changes have been produced at a rapid rate. Considerable uncertainty and variety remain concerning who and how we need to train for wartime medical care. To address these problems, Navy medicine created the RROC and its subordinate task forces.

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I. INTRODUCTION

A. BACKGROUND

A General Accounting Office (GAO) report in 1987 stated that the Department of Defense (DOD) had no standard system for measuring medical manpower readiness and that major gaps of readiness existed between services in their requirements. (GAO, 1987) These gaps were created by the services because each service uses different terms, formats and reporting periods to assess medial readiness. For example, each service differed in the way they reported on graduate medical education (GME) officers. The GAO attempted to compare the requirements of each service but could not. The Army data reflected no need for GME officers because the data included residents and not interns. With medical specialty data incomplete, the GAO calculated that the Navy could reduce its total continental United States (CONUS) physician requirement by two thirds. The Air Force gave aggregate data that included active and reserve forces requirements and authorizations but no inventory.

It also noted that the services were directed to produce a joint model to assess medical readiness requirements. In his memorandum to the deputy Secretary of Defense on March

15,1995, the Assistant Secretary of Defense concluded that the DOD "will never develop a consistent usable set of predictions of wartime medical requirements until we adopt a common comprehensive method for making them." (GAO, 1987) The Medical Planning Module (MPM) of the Joint Chiefs of Staff's Joint Operation Planning System (JOPS) was created to provide a "consistent computer-based means of predicting and evaluating medical requirements for all services." (GAO, 1987) Problems continued because of terms used by each service to describe manpower needs. For the Navy, the GAO report stated that the Navy uses the MPM of the JOPS to quantify numbers of key personnel. (1987)

Desert Shield and Desert Storm (ODS) provided a fairly limited test of medical readiness for all the services. During the conflict, questions were raised about the state of medical readiness of the services. (Schmitt and Shenson) A GAO report after ODS stated that the Navy had many deficits in their medical readiness capabilities. (GAO, 1993)

The DOD Inspector General issued a report in 1993 criticizing the DOD medical requirements determination process. The report found that ASD(HA) was unable to determine peacetime medical requirements. The report also criticized Navy medicine with respect to controls and oversight of efficiency reviews. The DOD IG found

"inconsistencies in the personnel requirements for fleet hospital programs and improving the effectiveness of the Navy Medical Doctrine Command." (Department of Defense Inspector General, 1993,vi)

Congress, in section 733 of the National Defense Authorization Act of Fiscal Years 1992 and 1993, directed the Defense Department to study the military medical system. It wanted to know how large a medical system is needed and whether the military should create its own or contract some of the requirements out to the private sector in the post-Cold War era and determine adjustments to increase cost-effectiveness during peacetime. The results of this "733 study" indicated that the military could decrease its medical structure by almost half and be able to meet the wartime requirement of two nearly simultaneous major regional conflicts.

In 1999, a follow up to the "733" study was completed by the Sustainment Base and Training Working Group. It determined the total number of military physicians and beds based on changes in planning scenarios and end-strength since the "733" study was completed. The results suggested that the Defense Department exceeds the required level of military physicians by approximately thirty percent. The study indicated, however, that this surplus is not necessarily bad

and recommended further analysis to determine the cost effectiveness of the benefit.

The study also showed that the required number of beds in CONUS increased by almost fifty percent over the "733" study numbers. The difference in the number of beds is related to the length of time assumed for evacuation of patients to CONUS for definitive care in the 1999 study. (Section 733 Update, 1999)

Because it felt that certain medical requirements were not adequately addressed by the "733 study," the Navy created its own model, known as the Total Health Care Support Readiness Requirement (THCSRR). According to Rear Admiral (RADM) Fisher, Deputy Surgeon General of the Navy in 1997, THCSRR clarified and validated the size and distribution of the total uniformed Navy medical personnel force required to support both Post Cold War missions, wartime and day to day. (Fisher, 1997) The Navy has initiated a Readiness Reengineering Task Force and a Readiness Reengineering Oversight Council to measure and achieve medical readiness in accordance with the objectives of the THCSRR.

B. OBJECTIVES

This thesis will examine issues affecting medical readiness in Navy medicine in the 1990's. It will focus on

the problem of measuring medical readiness in the post-Cold War period, using models and guidance from a variety of sources.

C. RESEARCH QUESTIONS

The primary research question is this: how is medical readiness in Navy medicine measured and reported. Questions that are secondary to this research are:

- How did Navy Medicine assess readiness during the Cold War?
- What did the Navy medical community do in regard to readiness during the post Cold War downsizing of the force and how did this impact readiness measurement?
- How do the THCSRR and MOSR models impact medical readiness measurement?
- How has SORTS been used by Navy medicine and what adaptations are being made to improve its utility as a measure of medical readiness?
- How does GSORTS differ from SORTS, and what problems are being encountered in using it to measure medical readiness?
- What guidance for measuring readiness is provided by the Medical Readiness Strategic Plan?
- Does the Defense Medical Human Resource System provide another database for developing measures of medical readiness?
- What guidance for measuring medical readiness is provided by the Assistant Secretary of Defense for Health Affairs?

- What guidance for measuring medical readiness is provided by the J-4 staff medical readiness division?

D. SCOPE

This thesis will examine how the Navy medical community defines and measures medical readiness. It includes recent historical efforts, but primarily focuses on changes in the structure of Navy medicine since the end of the Cold War and their implication for changing medical readiness measurement. Issues associated with the implication of the THCSSR-MOSR model for medical readiness are central to this thesis. The attempts to revise the SORTS and implement GSORTS are also significant.

E. ASSUMPTIONS

This thesis does not attempt to solve issues concerning medical readiness. It is to provide a critical assessment of the guidance, models, issues, and problems that apply to measuring readiness in Navy medicine.

F. METHODOLOGY

Two methods were used to gather the material for this thesis. An archival literature review was the main approach. Documents include, but are not limited to, Department of Defense reports, Inspector General reports, General Accounting

Office reports, white papers of individuals and offices of influence on readiness in Navy medicine; and articles and publications. Additional information was gathered through electronic mail and interviews of individuals at MED-27, N-931, J-4, and Bureau of Medicine and Surgery (BUMED).

G. DEFINITIONS AND ABBREVIATIONS

A glossary of acronyms and abbreviations used in this thesis is included in Appendix A.

H. ORGANIZATION

This section provides a brief description of how the remaining thesis chapters interact and what is addressed in each.

Chapter II discusses Navy medical readiness in the early 1990's. Specifically, it will look at the "733 Study" and the impact it had on manpower requirements associated with the wartime requirement and the update to the "733 Study." This chapter will also address Navy medicine's development of the Total Health Care Support Readiness Requirement and Medical Operational Support Requirement (THCHR-MOSR) model as a response to the "733 study." With the Navy Model, the requirements on all the major casualty care platforms (fleet hospitals and hospital ships) were validated. Also, the

Readiness Alignment Plan (RAP), often referred to as the galactic radiator, was developed to align platforms with specific hospitals. (Fisher, 1997) The Conus Healthcare Readiness Infrastructure Sizing Model (CHRISM) is used to coordinate the restructuring and modernization plan of Navy Medicine, while Readiness-Focused Capitation (RFC) addresses certain financial aspects Navy medical readiness. The Readiness Reengineering Task Force and the Readiness Reengineering Oversight Council have the assignment of aligning the Navy medical mission, using the THCSRR-MOSR, RAP, CHRISM, and RFC to the post Cold War threat. (Fisher, 1997)

Chapter III will address the guidance that Navy medicine receives with respect to medical readiness. This will include guidance from the Assistant Secretary of Defense for Health Affairs, J-4 (medical readiness division), Navy medicine's Readiness Reorganization Oversight Council, and Med-27. This review will focus on similarities and differences in the manner in which medical readiness is scoped and measured.

Chapter IV will address models attempting to measure Navy medicine's readiness. This will include discussion of the Global Command and Control Center (GCCC) along with Global Status of Resources and Training (GSORTS), Status of Resources and Training (SORTS), Joint Operational Planning Evaluation

System (JOPES), and the Defense Medical Human Resource System (DMHRS). Also, a look at a "homegrown" measure of medical readiness, specifically, the Readiness Explorer from Naval Hospital Naples, will be examined.

Chapter V will discuss implications, issues and problems involved in the measurement of Navy medicine readiness.

Chapter VI will summarize the findings of the thesis and provide recommendations for future study.

II. NAVAL MEDICAL READINESS IN THE EARLY 1990'S

This chapter will show the driving forces that Navy medicine used to structure its force for the post Cold War. The first part of the chapter will discuss the "733" study and then describe the Navy's response to it, which was intended to use readiness requirements to determine the size and composition of Navy medicine.

A. THE "733 STUDY"

In the National Defense Authorization Act of 1992, Congress directed the Secretary of Defense (SECDEF) to conduct a comprehensive study of the military health care system. This study was to provide a systematic review of the system during a conflict and adjustments to allow cost effective care to its beneficiaries during peacetime. The Act also required the SECDEF to evaluate alternative methods for delivering health care. This is the make (continue providing health care to the military population using the existing system) or buy (contract out services) provision.

In his congressional testimony William Lynn, then director of DOD's Office of Program Analysis and Evaluation, reported that according to the "733 study" the requirement for military assets had decreased significantly from the levels

that prevailed during the Cold War era. Lynn notes that the reductions not only occur because of the cuts in U.S. forces but also because of the changes in the nature of future conflicts.

Lynn described the new requirements in terms of the number of CONUS beds and the number of physicians needed for two nearly simultaneous regional conflicts. Table 1 compares the wartime requirements generated by the study and what the Fiscal year (FY) 1999 program provides.

Table 1. Medical Requirements Comparison FY 1999 versus Concurrent Scenario*

	CONUS Beds	Active-Duty Physicians	Reserve Physicians	Total Physicians
FY 1999	30,000	12,600	6,500	19,100
Concurrent Scenario (Base Case)	9,000	4,000	5,000	9,000
Concurrent Scenario (Augmented)	N/A	6,300	8,200	14,500
Percentage of FY 1999 Programmed Level	30	33-50	75-125	50-75

*Figures show approximate requirements, all numbers rounded (adapted from Lynn, William)

Lynn states that every attempt was made not to reduce the force by the use of modeling assumptions. To give a reference he states that the current estimates give more beds to military personnel than were provided in the Korea War and the Vietnam Conflict and about two times more physicians than were available in Korea, Vietnam, or the Persian Gulf War.

The central question posed by the "733 Study" was this: "Should DOD reduce its medical establishment to support the much smaller wartime mission now envisioned or should it maintain some excess capacity in order to provide peacetime care to non-active-duty beneficiaries." (Lynn, 1994,6) If the military decided to use only the wartime requirement than a shift would occur, i.e., many beneficiaries using Military Treatment Facilities (MTF) would need to be transferred to CHAMPUS.

As noted in the study, the military medical system for the wartime requirement was more than adequate. The need for the peacetime benefit would be the driver for the size of the medical system. To maintain or increase the capacity of the medical system should be based on cost effectiveness of a health care delivery system. If the DOD can provide more cost-effective care than their civilian counterparts, the military system should be maintained or expanded. If not, the system should only be used to maintain the wartime requirement and the peacetime benefit should be delivered using civilian health care assets. (Singer, 1994)

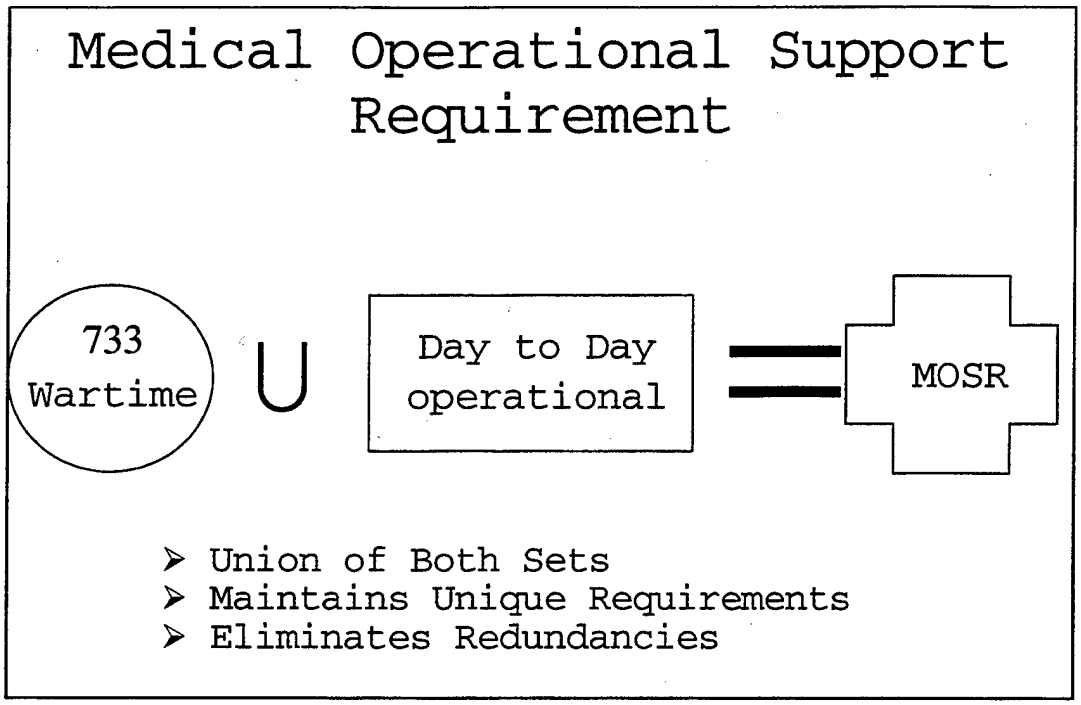
B. THE NAVY'S RESPONSE TO THE "733 STUDY"

In response to the "733" Study the Navy developed a model called THCSRR. It began by taking the requirements from the

"733" study, the number of Navy medical personnel to man theater operational platforms (the fleet hospitals and hospital ships) and to provide echelon 1 and 2 care (currently known as levels of care), and then asked the Center for Naval Analysis (CNA) to examine the day to day operational mission of Navy medicine. The CNA study included all requirements to support the fleet including Fleet Marine Force (FMF), outside the continental United States military treatment facilities (OCUNUS MTFs) and isolated continental United States military treatment facilities (ICONUS MTFs). The Navy made a union of the two requirements, using set theory, and developed the medical operational support requirement (MOSR). Figure 1 shows the logic behind the MOSR.

To arrive at the THCSRR, the MOSR plus a sustainment requirement are added to maintain the readiness manpower requirement for future years. This is known as THCSRR and shown in Figure 2.

The THCSRR shows the total active manpower readiness requirement for Navy medicine. Weber explains the benefits of THCSRR: 1. The model is dynamic i.e., it can be altered to determine new requirements; 2. THCSRR can show the impact of changing mission priorities; and 3. The requirements are reliable. (Weber, 1994)



SOURCE: Joe Goodin

Figure 1. Medical Operational Support Requirement

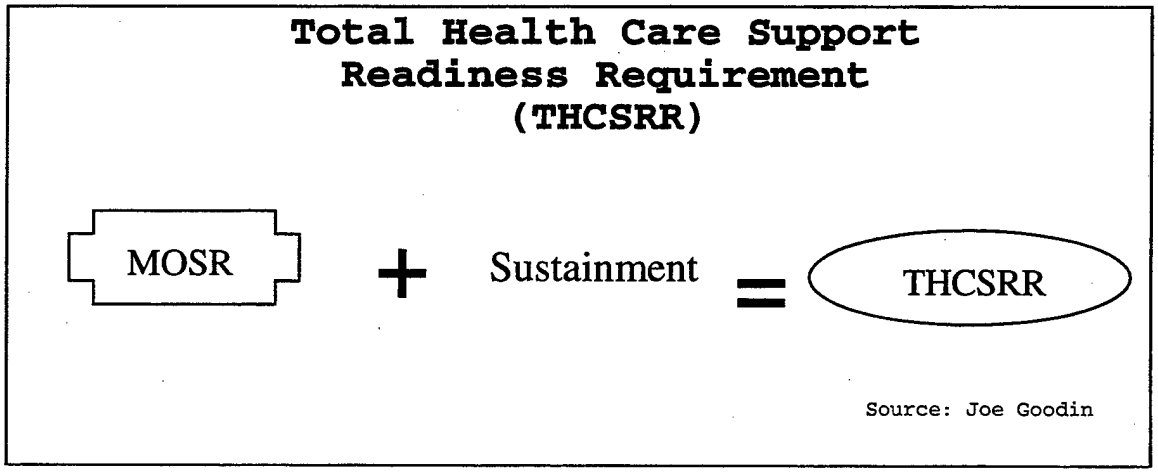


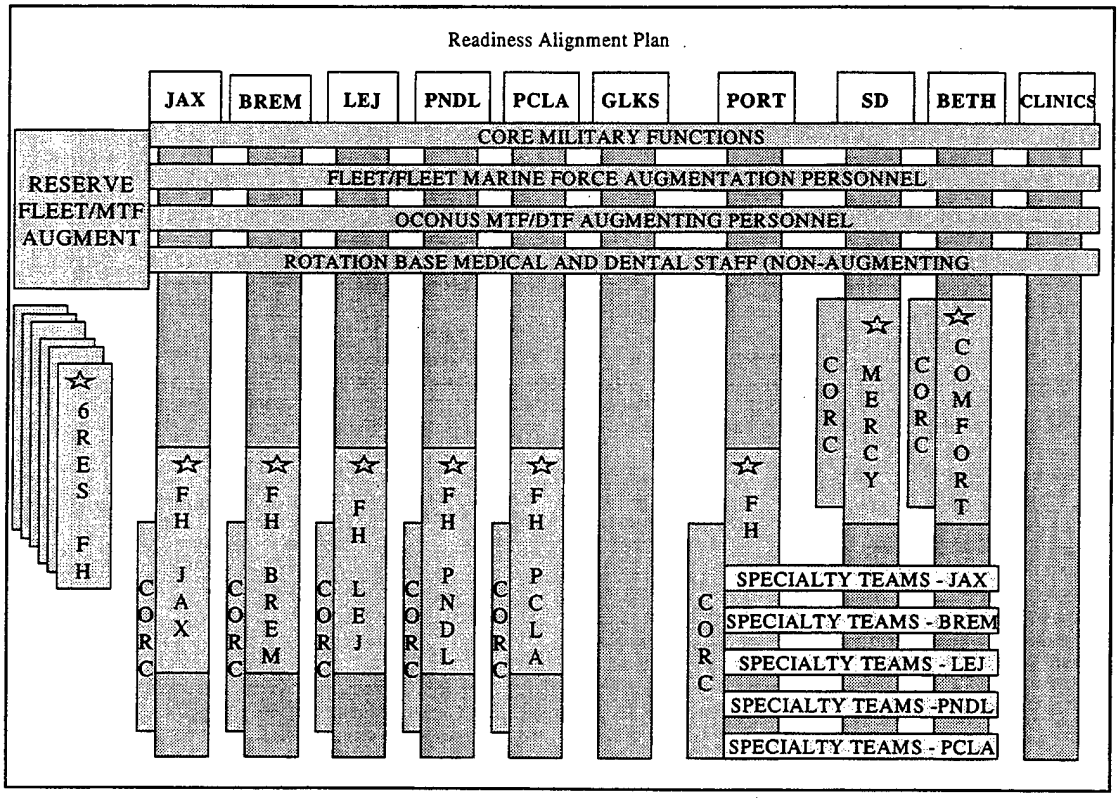
Figure 2. Total Health Care Support Readiness Requirement

C. THE READINESS REENGINEERING PLAN

Once the Navy determined the "right" number of people, the concept of the "right" training became an issue. To address this issue, Navy medicine developed the Readiness Alignment Plan. In the past, medical personnel from various hospitals in CONUS staffed individual Deployable Medical Platforms (DEPMEDs). During Operation Desert Shield/Desert Storm, people were sent to the various support activities but the training the people received prior to deployment was inadequate. The GAO reported that less than half of the personnel assigned to hospital ships had completed the required training in fire fighting, shipboard orientation; damage control and chemical, biological, and radiological defense. (GAO, 1993)

Navy medicine decided to align training and mobilization platforms, represented by a diagram popularly referred to as the "Galactic Radiator" (See Figure 4). The staff of the active component (AC) fleet hospitals are centered in Naval Medical Center, Portsmouth (PORT); Naval Hospitals Jacksonville (JAX), Pensacola (PCLA), Camp Lejune (LEJ), Camp Pendelton (PNDL), and Bremerton (BREM). The AC personnel of the hospital ships are focused in Naval Medical Centers Bethesda (BETH) and San Diego (SD). The AC medical end

strength that augment the fleet, FMF, and OCONUS facilities in wartime, and the day to day rotation base personnel are then distributed across all MTFs. The subspecialty teams (e.g., neurosurgery) are located at the naval medical centers. Care of returning casualties (CORC) is centered around the naval hospitals and provides flexibility for the total force (active and reserve). The reserve component FHs are matched with the AC FH which provides flexibility for training and deployments.



Source: Scott Foster and Walt Tinling

Figure 3. Readiness Alignment Plan

The THCSRR - MOSR model provided Navy medicine with an empirical model to determine the number of people needed to support medical readiness. Another model called CHRISM (CONUS Health Care Readiness Infrastructure Sizing Model) was used to determine the infrastructure needed to support the personnel. This model takes into account the need for the right equipment to restructure the Fleet/FMF, fleet hospital 2010, to determine the number of MTFs, and how to support the MTFs with personnel. Figure 4. Represents the logic underlying CHRISM.

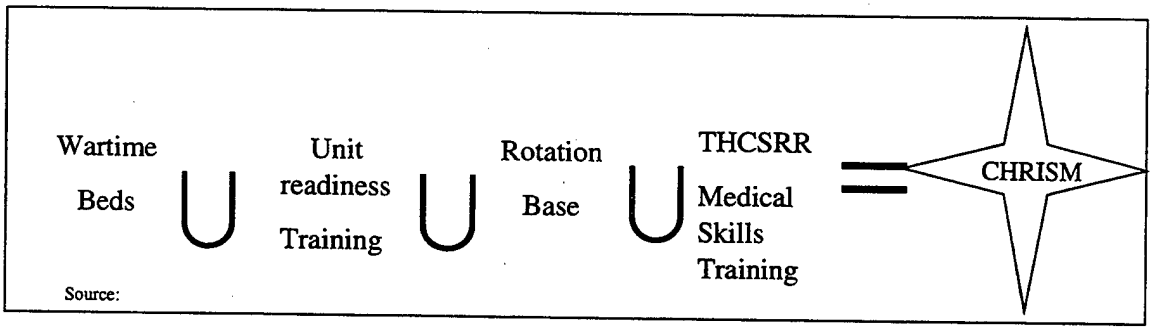


Figure 4. CONUS Health Care Readiness Infrastructure Sizing Model

Finally, Navy medicine developed a financial plan for readiness. The Readiness Focused Capitation (RFC) strategy was developed to deal with the problem of limited budgets. The RFC strategy assumes that the cost of readiness is fixed because 80-90 percent of the Direct Care System (DCS) is a fixed cost. The DCS houses and trains the THCSRR manpower; therefore infrastructure costs associated with readiness are

not variable. Any variable costs are for Tricare, the new managed care system that replaced the Civilian Health and Medical Plan of the Uniformed Services (CHAMPUS).

D. SUMMARY

The end of the Cold War required a change in requirements for medical readiness. The DOD performed a study to determine these requirements and concluded that the DOD could reduce the number of physicians and beds by over half. Navy medicine was convinced that the study overlooked certain readiness requirements inherent in providing medical support to the fleet and Marines. To identify these requirements, the Navy undertook its own study. The result was the THCSRR. Coupled with THCSRR were requirements for training, logistics, and budgeting to bring Navy medicine into the post-Cold War era in regards to readiness.

III. GUIDANCE FOR NAVY MEDICAL READINESS

This chapter will explore the guidance that is available to Congress and Navy medicine with respect to readiness. It will not detail all instructions, directives and memoranda but instead primarily focus on general directives supplied by the DOD to guide Navy medicine readiness.

A. CONGRESS

Congress has the task of being the ultimate oversight authority for the military services in regards to readiness. In 1996, Congress passed legislation (10 USC 482) requiring DOD to produce quarterly reports on personnel and unit readiness. Specifically the report looks at readiness problems and remedial action, considerations of readiness assessment, comprehensive readiness indicators for active components, and unit readiness indicators. The readiness measures from the individual services are consolidated and sent to Congress.

1. Is the Brief Useful?

The GAO indicated that Congress gets only a vague description of readiness problems and actions needed to correct deficiencies from the quarterly reports. (1998) GAO

notes that two separate studies (a GAO study, validated by a Logistic Management Institute study, both done in 1994) recommended the addition of items (medical readiness was not included) that they thought would help give a better picture of readiness assessment. The DOD however, does not feel some of the inputs are necessary and that some inputs are in other reports and will not put them in the quarterly reports.

2. Medical Readiness and the Quarterly Readiness Report

The main focus of the quarterly report is on the war-fighting communities. In the quarterly report to Congress from July-September 1998, medical readiness is not mentioned. Medical readiness is under the support function of readiness for the war fighters. It would be difficult to assess Navy medicine's readiness from this document.

B. OFFICE OF THE SECRETARY OF DEFENSE

The department in the OSD that looks at the total picture of readiness for the DOD is the Deputy Undersecretary of Defense for Personnel and Readiness. Under the Under Secretary is the Deputy Under Secretary of Defense for Readiness. The Deputy Undersecretary is responsible to the SECDEF and the Deputy SECDEF, and the Under SECDEF (Personnel and Readiness) on all issues regarding military readiness and

training. This office deals with all aspects of readiness that include policies, programs, budgeting and research. This agency puts together the quarterly report to the Congress per 10 USC 482. (Deputy Undersecretary webpage, 1999)

The report to Congress covers all aspects of readiness to include readiness to meet a specific scenario, unit readiness, tempo, recruiting and retention, Y2K status, and Joint Readiness strategic concerns. The GAO noted that much of this document, almost half, is actually explanations of why the report is done and definitions. The report is in the aggregate showing Navy as a whole while breaking down the war fighting aspects of the Navy to its components. (GAO, 1998)

The office of the Assistant SECDEF (Health Affairs) is the department responsible for medical readiness. The ASD(HA) is the principal staff assistant and advisor to the Under SECDEF for Personnel and Readiness, the Deputy SECDEF, and the SECDEF for all DOD health policies and, programs and Activities. The ASD(HA) is the program manager for all health and medical resources. (DOD Directive, 1994)

The Medical Readiness Strategic Plan (MRSP) contains the ASD(HA) policy directives on medical readiness. The first MRSP was issued in 1988 and the most recent update was in 1998 (MRSP 1998-2004). In MRSP 1998-2004, the ASD(HA) broke down readiness into twelve components, noted in Table 2.

Table 2. The Twelve Components of the MRSP 1998-2004

Twelve Components of the MRSP 1998-2004	
1. Planning	7. Training
2.Requirements, capabilities, and assessment	8. Blood
3. Command, control, communication, computer information management	9. Military operations other than war (MOOTW)
4. Logistics	10. NBC defense
5. Medical Evacuation	11. Research and Development
6. Manpower and personnel	12. Preventive Medicine

The appendices to the MRSP contain the action plans; the Project Action Officer (PAO) responsible for each action plan; the format to submit action plans; and the dependency of action plans of each component on other action plans.

There are 75 action plans for all the services, eight of which are Navy specific. In comparison, the Army has twenty-two specific plans and the Air Force has two specific action plans. Some action plans are joint plans; for example, the Army and the Navy have the action plan for developing automated field production of water for injection (e.g., blood washing, and reconstitution, etc.)

Each responsible party is required to submit an implementation plan according to a specified format. The plan needs to include the task, the PAO, milestones and milestone completion dates, and if the project is funded. These reports

must be forwarded to the OASD(HA) and are placed in a database.

The MRSP 1998-2004 provides both a broad overview of medical readiness requirements and details what is needed to complete the requirements.

C. JOINT CHIEFS OF STAFF

Under the Joint Chiefs of Staffs and the J-4 division (logistics) are the deputy director for medical readiness and the medical readiness division. They are responsible for integrating health service support to the force in times of peace and war (Joint Chiefs of Staff Web Page J-4 Divisions).

Their vision of medical readiness is called Force Medical Protection - Full Spectrum Health, also known as Force Health Protection, and is congruent with the JCS's Joint Vision 2010. This vision represents the care for the military member in a continuum that supports the warfighting mission with the best medical care possible. (Joint Chiefs of Staff J-4 Projects webpage, 1999). The medical planners want to create a health system that is light, fast, and compatible with rapid evacuation capabilities.

The system is in line with the national military strategy pillars of peacetime engagement, deterrence and conflict

resolution, and fight to win. The relationship aligns the pillars of medical care with the warfighters pillars to support the National Military Strategy. The foundation of the Force Health Protection (FHP) is the CONUS Based Military Health Service System (MHSS), currently known as the Military Health System. The name given to Force Medical Protection and the Military Health Service System is the Joint Health Service Support System. Figure 5 provides a picture of Force Health Protection and how it relates to the National Military strategy.

D. FORCE HEALTH PROTECTION

It took two years and 11 working groups to construct the capstone document, Force Health Protection. (J-4 webpage, 1999) It discusses in general terms what the three pillars encompass and what is needed in the way of infrastructure to provide Force Health Protection.

A healthy and fit force is broken down into two main parts, the body and the supportive environment. The body section includes physical fitness, injury disease and prevention, nutrition, dental health and the mind (psychological). The other section is the supportive environment, so the active duty member is not distracted with concerns about safety and security or the well being of

themselves or their family. (Joint Chief of Staff web page, Medical Readiness Division)

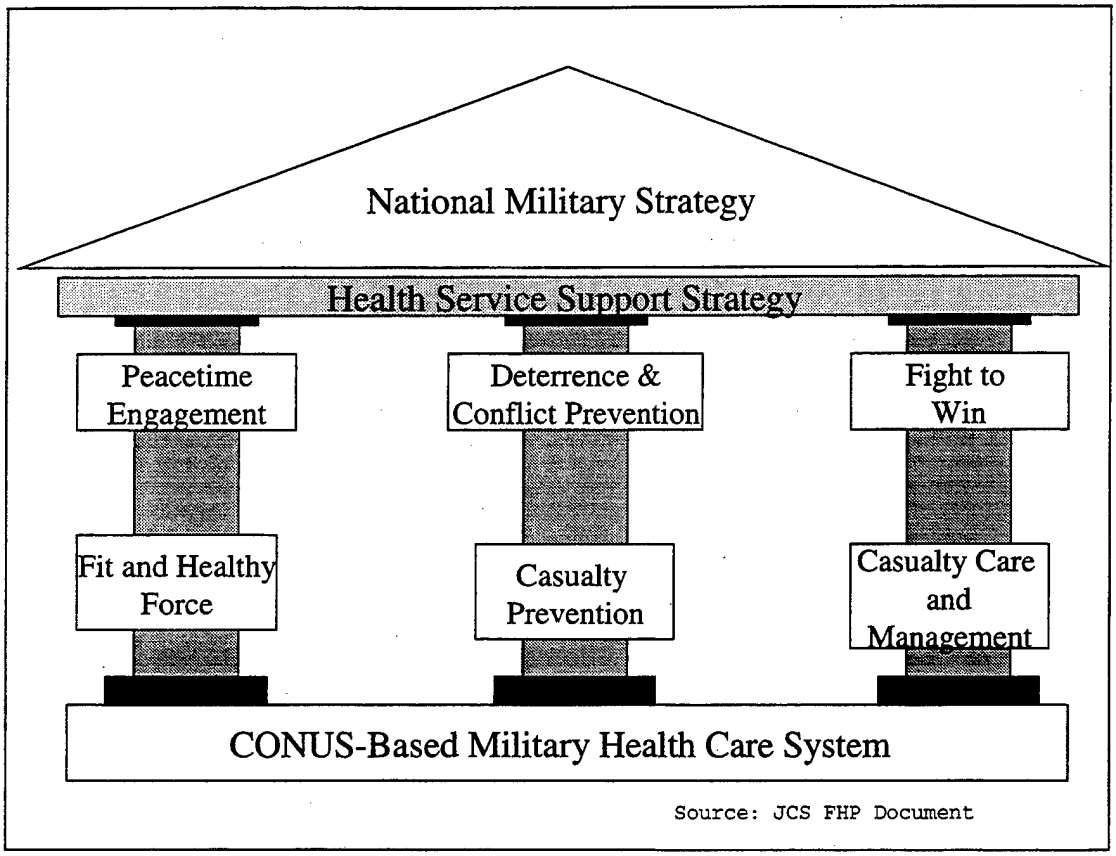


Figure 5. Force Health Protection

The casualty prevention chapter discusses the need to decrease casualties. It notes that disease and non-battle injuries accounted for 69 percent of admissions in Vietnam and 95 percent of admissions in World War II and Somalia. (JCS FHP Webpage 1999)

It states the need to

- identify medical threats and implement countermeasures
- attempt to control infectious diseases
- prevent mental health injuries (such as post traumatic stress disorder)
- assess the environment and occupation for possible injury
- prevent non battle injuries (these include sports injuries, motor vehicle accidents, physical over training etc.)
- collect and communicate data

The chapter on casualty care and management explains the levels of care (formerly known as echelons of care) for victims. Figure 6 provides a representation of the levels of care. The first response (within the first five to ten minutes after injury) is "the most critical time for treatment of severe battlefield trauma". (Joint Chiefs of Staff J-Logistics, Medical readiness Division webpage, 1999).

The second level of care is forward resuscitative surgery. This area provides life and limb saving surgical techniques to stabilize the patient. Next is the theater hospital providing essential care and readying patients for evacuation to definitive care. Theater hospitals will need to change because of the changes in warfighting. The theater hospital will need three functional elements; a small crisis oriented element, the core hospital, and a mobile breakout

hospital capable of providing independent care for a short period of time, instead of one inflexible large hospital.

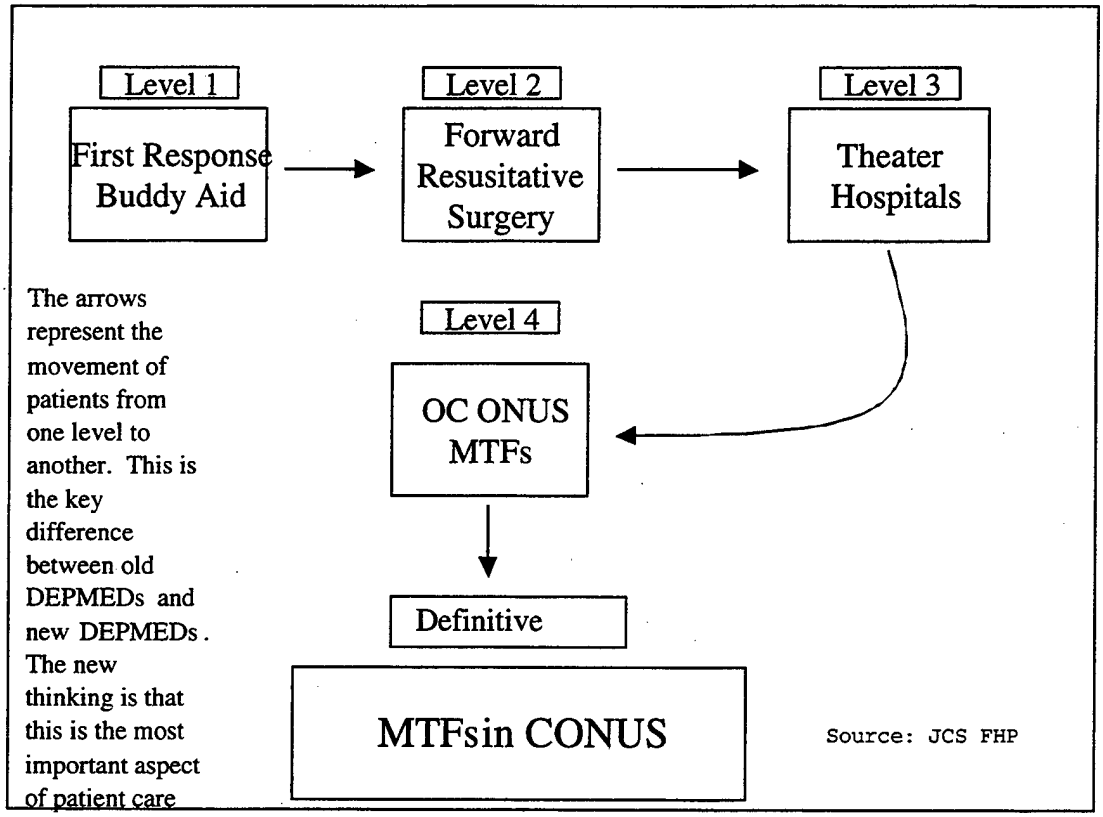

Level 1
First Response Buddy Aid
Level 2
Forward Resusitative Surgery
Level 3
Theater Hospitals
The arrows represent the movement of patients from one level to another. This is the key difference between old DEPMEDs and new DEPMEDs. The new thinking is that this is the most important aspect of patient care
Level 4
OC ONUS MTFs
Definitive
MTFsin CONUS
Source: JCS FHP

Figure 6. Levels of Care in the War Time Theater

Finally, enroute care is discussed. This is the glue that holds together the other aspects of casualty care and management. Changing technology allows enroute care to expand its importance in the new Force Health Protection. The goal is to give uninterrupted care to patients from point of injury to definitive care in the United States. (Joint Chiefs of

Staff Medical Readiness Division) This is a change from the previous treatment of patients in theater.

The final chapter of Force Health Protection outlines the infrastructure and support that includes training, logistics, information technology/information management, and research and development. Each aspect is expanded to provide guidance. For example, a characteristic within logistics should include the use of best business practices.

Force Health Protection provides broad guidance for the services to develop a Joint Health Service Support strategy (JHSS). The requirements necessary for JHSS were completed in working groups during 1997. These seminars provide the metrics, strategies, goals and technology needed to implement the FHP. (J-4/Medical Readiness Division, 1997)

E. RELATIONSHIP BETWEEN THE FHP AND THE MRSP

Medical Readiness can be broken down into a health component and a care component. (Horne, 1996) The health component consists of keeping the military member healthy to deploy. The care component is the training needed by medical personnel to be able to treat patients during a deployment. (1996)

The FHP and the MRSP 1998-2004 are complementary documents, though each looks at a different aspect of

readiness. The MRSP 1998-2004 focuses on care readiness, which is the training and ability of medical departments to effectively manage patients during deployments. The FHP is congruent with health readiness, both concentrating on the overall health and fitness of the military member.

F. NAVY MEDICAL READINESS INITIATIVES

In 1995 and 1996, events happened within Navy medicine that proved to be motivating factors to reengineer readiness program within Navy medicine. For example, in 1995 meetings between logistics support personnel of the Navy and Marine Corps provided shape to the Deployable Medical Platform (DEPMED). (Crittendon, 1999) In 1996, Navy Doctrine Command and Marine Corps Combat Development Command joined force in an attempt to understand how Navy medical doctrine fits with Operational Maneuver from the Sea. (Crittendon, 1999)

To provide structure to these readiness initiatives, the Surgeon General created the Readiness Reengineering Oversight Council (RROC) in 1997. The Council was to give flag level oversight to Navy medicine's reengineering process. The actual initiatives are carried out by three separate subordinate groups, the Readiness Reengineering Task Force, the Naval Health Services Doctrine Working Group and the

Deployable Medical Platforms Advisory Council. (RROC website, 1999)

The Readiness Reengineering Task Force (RRTF) has six "tiger teams," consisting of education and training, evaluation, finance, fit and healthy force, marketing, and operations. This is an action officer matrix organization. Each team has goals to accomplish. The goals of each team are to satisfy the charter of the Readiness Reengineering Oversight Council.

The mission of the RRTF is to complete the comprehensive plan to bring Navy medicine into optimum readiness by the turn of the century. (RROC website, 1999) An example of what the RRTF has done was to change the component Unit Identification Code (UIC) so that individuals are primarily assigned to a deployable medical unit, then a MTF.

The Naval Health Services Doctrine Working Group (NHSDWG) is another group under the RROC. They are to work in conjunction with the Naval Doctrine Command and the Marine Corps Combat Development Command on the development of doctrine governing the use of health service support platforms to support Naval forces. The group works mainly with medical forces of the marines, large amphibious ships, and units identified in the Navy Capabilities and Mobilization Plan (NCMP). The guidance for the group is provided by the

Doctrine for Health Service Support in Joint Operations (Joint Publication 4-02). The group develops concepts that are congruent with JCS Vision 2010, Naval Operational Concepts, and Operational Maneuver from the Sea. (NHSWG webpage, Charter, 1999)

The final group under the RROC is the Deployable Medical Platforms Advisory Council (DMPAC). The job of the DMPAC is to serve as a link between the RRTF, the Doctrine group and deployable platforms considering if the proposed changes would help or hinder the deployable platforms. Basically, DMPAC reviews RRTF and Naval Doctrine Working Group recommendations before they are forwarded to the RROC. Figure 7 shows the relationship of the three groups.

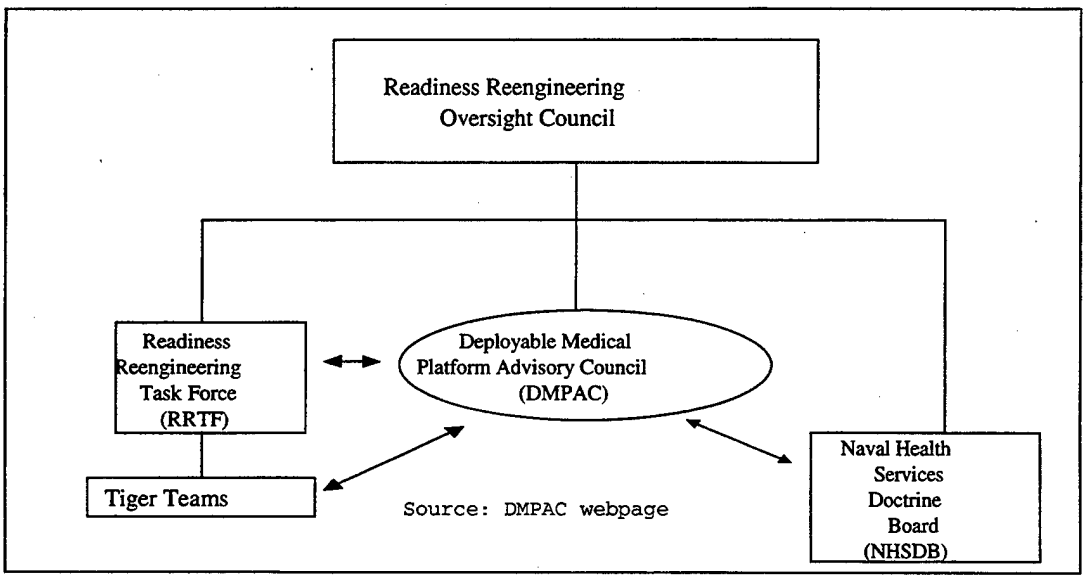

Readiness Reengineering Oversight Council
Readiness Reengineering Task Force (RRTF)
Deployable Medical Platform Advisory Council (DMPAC)
Tiger Teams
Source: DMPAC webpage
Naval Health Services Doctrine Board (NHSDB)

Figure 7. Relationship of DMPAC to the RRTF and the NHSDB

The DMPAC is to insure that any issues or concepts being forwarded have been considered at the deckplate. Members of DMPAC include the Fleet Marine Force, Fleet activities, Fleet hospitals, Hospital Ships, Integrated Logistics Support, Uniform Services University of the Health Sciences (USUHS) (invited participant), and the Center for Naval Analysis (invited participant).

The DMPAC group developed the Naval Force Health Protection for the 21st century, a union of the Naval Expeditionary Combat Casualty Care (NEC^3) and the Joint Chiefs of Staff Force Health Protection.

Under the DMPAC is a group called the Consolidated Integrated Logistics Support Working Group (CILSWG), formerly the Deployable Medical Platform Quality Management Board. Their function is to perform continuous process improvement and interoperability across all deployable medical platforms. The group consists mainly of the primary providers of integrated logistic support. Some examples are maintenance planning, manpower, supply, and shipping. The group works within the boundaries of current doctrine, policy, and funding. (DMPAC Charter, 1999)

G. SUMMARY

The end of the Cold War and DS/DS highlighted inconsistencies with the military's stated readiness assessment and actual readiness. (GAO, 1993 and IG, 1993) The Congress required the services, through the JCS, to provide a quarterly briefing. The briefing is generally a synopsis of the readiness status of all service's warfighting communities. Navy medicine is aggregated into the supply and logistic aspects of the Navy's section of the report.

Several departments within the DOD have specific responsibility for medical readiness. The ASD(HA) is the lead agent for medical readiness and produced the MRSP 1998-2004 to address readiness issues for all the services. The JCS J-4 medical readiness division provides direction for integrated medical care of the services through Force Health Protection. Force Health Protection is congruent with the JCS's Joint Vision 2010 and provides guidance for the medical departments of the three services. Navy medicine developed the RROC to direct Navy medicine's readiness efforts.

This thesis attempted to focus on only the general directives given to the Navy for medical readiness and found many actors are producing large quantities of documents on guiding Navy medicine's readiness. If the amount of medical

readiness guidance is significant, one can imagine the groups and individuals who are examining, formulating, and changing guidance, direction, policy, instructions, and memoranda on medical readiness issues. Along with the many documents, the rate of change in these documents over the past four years has been immense, hence, making it even more difficult to monitor guidance given to Navy medicine.

IV. MODELS AND SYSTEMS USED TO MEASURE AND DETERMINE NAVY MEDICINE'S READINESS REQUIREMENTS

This chapter will describe the Global Command and Control System (GCCS) and how it is used for readiness and its impact on Navy medicine. First, the history of the legacy system will be described and how that became the GCCS. Several systems under the legacy system that continue to be used under the GCCS will also be discussed, especially the Joint Operations Planning and Evaluation System (JOPES) and the Status of Readiness and Training System (SORTS). Finally, the Navy's system of measuring medical readiness is discussed and a Navy "Home Grown" readiness program, the Readiness Explorer from Naval Hospital Naples, will also be reviewed.

A. HISTORY OF THE GLOBAL COMMAND AND CONTROL SYSTEM (GCCS)

In the 1960's, the services built a command and control system called the World Wide Military Command and Control System (WWMCCS). This provided a secure environment for the President and the Secretary of Defense to receive tactical warnings and intelligence. The WWMCCS also provided direction to the U.S. combatant commanders. (Inspector General, 1995) The WWMCCS produced top secret reports, so terminals were in

vaults and access was not widely available. (Wallis, Graham, and White, 1998)

As technology advanced, upgrades to the WWMCCS were completed between the 1980's and 1992. Despite these upgrades, the capabilities of the WWMCCS remained limited and concerns were raised that the returns did not justify the expense. A tiger team met in July 1992 and concluded that the WWMCCS was deficient in meeting the warfighter's needs. The team cited such deficiencies as users' inability to access and enter data, lack of software adaptability to modification, a costly, inflexible architecture, maintaing below top secret material on a top secret system, a lack of resources to remedy deficiencies and a reliance on outmoded mainframe computing. This proved the end of the WWMCCS and a new system should be developed. (Wallis, Graham, and White, 1998)

In December of 1992 funding for the WWMCCS was discontinued and redirected to the GCCS. The GCCS was to be a commercial based client server model. It was to use the Secure Internet Protocol Router Network (SPIRNET), an already established secure communication system so a wider range of users could access data. (Wallis, Graham, and White, 1998) The GCCS was a cooperative effort between the Defense Information Systems Agency (DISA), the JCS, and the ASD for

Command, Control, Communication, and Intelligence (ASD/C^3I). (Wallis, Graham, and White, 1998)

In 1996, the first version of the GCCS was released. Problems occurred because of untrained users, missing or poor documentation and other "glitches". (Wallis, Graham, and White, 1998) In 1998 GCCS 3.0 was fielded.

Global Command and Control system 3.0 represents a major shift from previous GCCS models. Previous models were in a mainframe environment and GCCS 3.0 is based in a client server environment. A capability and feature of the GCCS is the Joint Operations Planning and Execution System (JOPES). (Wallis, Graham, and White, 1998)

The JOPES concept is a combination of joint policies and procedures supported by automated data processing (ADP) designed to give joint commanders and planners the capability to plan and conduct military operations. (Joint Chiefs of Staff, 1995) JOPES is used to provide policy and procedures for both crisis and deliberate planning for the JCS, Military Services, commanders, and other defense agencies. (Inspector General, 1995)

B. EVOLUTION OF THE MEDICAL ANALYSIS TOOL

A subsystem within WWMCCS and JOPES was the Medical Planning Model (MPM). It was created in the late 1970's as a

more consistent means of predicting and evaluating medical requirements in support of the operation plan (OPLAN). (Jeffs, 1997) It was designed to give planners a quantified impact statement of a proposed OPLAN. An individual enters data using the input options of the MPM which is saved to a tape and batch processed using mathematical models to produce outputs based on population at risk and other medical planning factors. The MPM then creates data tables to be used in algorithms. The algorithms generate admissions, patient flow rates, and compute medical requirements. (Jeffs, 1997)

In his thesis, Steven Jeffs evaluated the MPM model in terms of accuracy, compatibility, and usability. He also discussed strengths and weaknesses of the MPM. He concluded that the MPM was not very accurate for today's battlefield environment and limited in the number of Operation Zones. According to Jeffs, the MPM will over estimate actual requirements. With the change to the GCCS, the MPM was considered incompatible with current technology and not flexible enough to be updated. The MPM was not "user friendly" and mistakes were difficult to correct. The strengths of the MPM (mathematical algorithms and dispersion factors for the force) did not compensate for its weaknesses (inflexible and inaccurate). (1997)

Early in the 1990's the Medical Planning and Execution System (MEPES) was to replace the MPM. The MEPES was similar to the MPM in that it was to forecast medical requirements based on the war-fighting scenario. However, the Joint staff felt that the needed corrections, testing and validation were too costly and did not implement the model. (Levy, May, and Grogan, 1996)

The External Logistics Processor-Medical Model (LPX-MED) was designated to replace the MPM. The LPX-MED was designed with the dual role of determining if medical assets would be sufficient and be a medical requirements generator. The Joint Chiefs wanted to create a "MPM- like "front" end to (the) LPX-MED". (Levy, May, and Grogan, 1996, 7)

The new model the Joint Chiefs envisioned would join the MPM and the LPX-MED, creating the Medical Analysis Tool (MAT). "The MAT is designed for requirements and capabilities analyses, planning, risk assessment, and decision support." (Jeffs, 1997,42) The MAT qualifies the impact of the war-fighter's OPLAN on the medical system. NATO medical support capabilities are included in the MAT.

Jeffs evaluated the MAT model in terms of accuracy, compatibility, usability, strengths and weaknesses. He concludes that the MAT is more accurate than the MPM, compatible with the GCCS, and very user friendly. Jeffs notes

that the strengths (accurate, compatible, and user friendly) far outweigh the weaknesses (scenarios need significant amounts of computer memory). (1997)

The JCS feel that the "ability to more accurately define requirements using Service casualty rates and specific CINC-developed scenarios should contribute to the reduction of the medical footprint in a theater of operations. The JCS recommends that the Defense Department accept the MAT as the standard for operational planning and programming of medical requirements (e.g., beds, medical evacuees, medical re-supply, and blood)." (Joint Chiefs of Staff j-4 Projects, Joint Health Service Support, 1998)

C. SORTS AND ITS RELATIONSHIP TO READINESS

The Status of Resources and Training System (SORTS) was another subprogram of the WWMCCS that has transitioned to the GCCS, renamed GSORTS. SORTS attempts to give the condition of the personnel and resources that a unit possess and the status of training. The "C-rating" of the SORTS, given by the unit commander, reflects the proportion of the wartime mission the unit can perform. (Moore, S.C., et al., 1991, 11) There are five levels for the C-rating.

- C-1 The unit can take on its full wartime mission
- C-2 The unit can take on most of its wartime mission

- C-3 The unit can take on many but not all of its wartime mission
- C-4 The unit requires more resources or training to meet its wartime mission, but if directed may undertake portions of its wartime mission
- C-5 The unit is unable to meet its wartime mission due to Service-directed resource actions

(CJCS, 1993)

Criticisms of SORTS by the GAO, IG, and other are numerous. The findings of these reports typically recommend more SORTS indicators to increase the accuracy of readiness reporting. Desert Shield and Desert Storm provided a limited test of whether SORTS actually stated a unit's readiness. Of the hundreds of units rated as ready by SORTS, only three were not deployed. This suggests that SORTS data is more reliable than critics claim. (Orlansky, Hammon, Horowitz, 1997)

D. NAVY MEDICINE'S ATTEMPT TO USE SORTS

Navy medicine attempted to develop its own SORTS metrics to measure medical readiness. The SORTS system has been implemented in the line for years. (Turner, 1998) Captain Turner states that Navy medicine could not afford a system as big as the line communities' SORTS but could develop something that interacts with it. (1998) This would provide consistency in terminology between the line and medical community. However, according to Captain McClain, current Deputy Director

of the Bureau of Medicine and Surgery's Readiness Division (MED-27), the plan to use SORTS has been cancelled and Navy medicine continues to use the Standard Personnel Management System version two (SPMS II).

E. THE SPMS II AND NAVY MEDICINE'S READINESS

"The Standard Personnel Management System II provides a tool for the medical readiness manager to administer the operation, planning, programming on all aspects of readiness which includes personnel, education and training, mobilization, and expense distribution." (SPMS II Website, 1999)

Metrics included in SPMS II include residuals (total number deployable) by designator code including non-medical personnel, augmentation changes since the last SPMSII report, gender ratios, readiness status (this is checklist type form that the local command have members fill), readiness improvements of personnel that are not C-1 or C-2, and training status of the command. Training status is similar to C-status reporting under SORTS.

- T-0 indicates a new member at the command less than 60 days
- T-1 indicates training complete (85 percent or greater of personnel have completed training)

- T-2 indicates training not complete (70 percent or greater of personnel have completed training)
- T-3 is greater than or 55 percent personnel complete training
- T-4 is less than 55 percent complete.

(BUMEDINST 1550.22)

F. A CHANGE TO THE SPMS II

An initiative to provide a single DOD solution for managing many human resource topics e.g., labor cost analysis, managing readiness, scheduling and training, is currently in progress. The Defense Medical Human Resource System (DMHRS) is to provide a single integrated solution for the task of managing readiness, personnel management, patient acuity and workload management, labor cost assignment, scheduling, training, and other human resource areas. Until the DHRMS comes on line (projected migration date is June 2000) Navy Medicine will continue to use the SPMS II. (DHMRS website) DMHRS is to support the six goals of the MHS Strategic Plan:

- Joint Medical Readiness Capabilities
- Benchmark Health System
- Healthy Communities
- Resource and Structure
- Training and Skill Development
- Technology Integration

(DHMRS website, 1999)

The DHRMS is to be part of a larger system called the Health Standard Resources System (HSRS), as directed by Health Affairs. The HSRS is to be a single, world wide, integrated, medical resources management information system for the DOD. Its goal is to integrate all service specific readiness and manpower utilization, workload and financial reporting, and business office processing into a single DOD system. (HSRS webpage, 1999)

G. A HOMEGROWN MEDICAL READINESS INITIATIVE

An individual command, Naval Hospital Naples, has developed a readiness-tracking program that uses the World Wide Web (WWW). They asked the following questions:

- What does a C-1 status consist of?
- What is the standard methodology of tracking active duty members?
- What is the standard in reporting the information to management?

(Whitecar, 1999)

The working group at Naples found that there was no standard methodology to track C-1 status of military personnel at the command level. A C-2 status is acceptable as a deployable status (HIV screening and immunizations can be past due). Reporting of individuals' deployment status was

inconsistent and inaccurate, causing real time information to be unavailable.

Using current technology and the web, the working group at Naples developed a program called the "Readiness Explorer."

The program provides the following reports.

- Personnel Summary Report, which shows all the requirements, considered C-1.
- A forecast report of the personnel summary from one to twelve months
- An overdue requirements report
- A requirements forecasts report
- A platform assignment roster
- A recall roster

The working group considered security in the development of the program. The program provides an audit trail with Internet protocol verification with the name of the person who last edited data. Also, menu and search restrictions exist.

The system is for in house personnel and gives commanders a real time assessment of the medical readiness of their personnel. This type of program fits the objective of the field commander, who is interested in having deployable personnel. (Horne, 1996) The developer of the program tested the Readiness Explorer at Naval Hospital Naples starting in June 1997. The readiness of the personnel increased from 35 percent to over 90 percent in three months. (Whitecar, 1999) The developer stated that the program worked quickly because

Temporary Additional Duty (TAD) and leave were tied to a person's C-1 Status. If a person did not have a C-1 status the person could not go TAD or on leave. (Whitecar, 1999)

The Readiness Explorer is proactive and easy to use, giving the unit commander a real time summary of the deployability status of the personnel with a user friendly interface, minimum hardware requirements, graphical representations of deployablility status with security control features. (Whitecar, 1999)

H. SUMMARY

Systems attempting to capture readiness have been around since the 1960's. The WWCMMS was developed to provide information to senior leaders on overall threats and readiness of the force. The WWCMMS became obsolete and the GCCS was developed to replace it. Two readiness related programs under the WWCMMS that transferred to the GCCS were JOPES and SORTS. Under JOPES, a model designed specifically for medical resources and requirements was built, called the MPM. After the Cold War and increases in computer technology, the MPM proved to be inaccurate and not user friendly. The DOD attempted to create other models for medical requirements during times of conflict i.e., MEPES and LPX-MED. These proved to be steppingstones to the current model being

developed, tested and implemented, called the MAT. The MAT is actually a combination of the MPM and the LPX-MED. As Jeffs points out, it is accurate and user friendly, using current technology.

The SORTS system changed to GSORTS when the WWCMMS changed to the GCCS. Navy medicine attempted to develop a SORTS-type system to interface with the regular Navy's SORTS. That was scrapped and Navy medicine continues to use the SPMS system of reporting readiness. In the near future, Navy medicine is to change over to the DHRMS under the broader scope of the HSRS. The DHRMS will be a joint integrated readiness tool that will contain medical metrics on all military medical services similar if not equal to SPMS II. Naval Hospital Naples developed a personnel tracking tool for use by unit commanders to ensure military medical personnel are ready to deploy.

With the end of the Cold War, increases in technology, and congressional intercessions, changes in readiness systems have increased. The rate of change in programs that attempt to measure readiness has been dizzying compared to the rate of change before the Cold War. It took the DOD twenty-five years to develop and implement the WWCMMS and now have changed whole systems in less than eight. All the changes are attempting t help the war fighter and the medical unit commander to better

estimate the real requirements and needs for deployment. To summarize, the models are attempting to create a more efficient and cost effective medical force to support the fleet by using technology to their advantage.

V. ISSUES AND PROBLEMS OF ACHIEVING MEDICAL READINESS

This chapter will analyze issues and problems in achieving medical readiness. It will include discussion of the dual role of the MHS, training of medical personnel, and the deployability of personnel.

A. THE DUAL ROLE OF THE MHS

Military medicine has two missions. One is to keep the active duty population healthy during peacetime. The other is to be able to provide medical care during times of armed conflict.

In a study by the Center for Naval Analysis, Horne attempted to differentiate the two sides of the MHS. He broke medical readiness down into two parts: health readiness and care readiness. Health readiness consists of getting and keeping all military members healthy and ready to deploy. Care readiness addresses the ability of medical personnel to do their job upon deployment. (1996)

Horne attempted to answer the question how Tricare, the DOD's managed health care initiative, and readiness fit together. First he showed the intersections of Tricare with health and care readiness. Figure 8. illustrates these intersections.

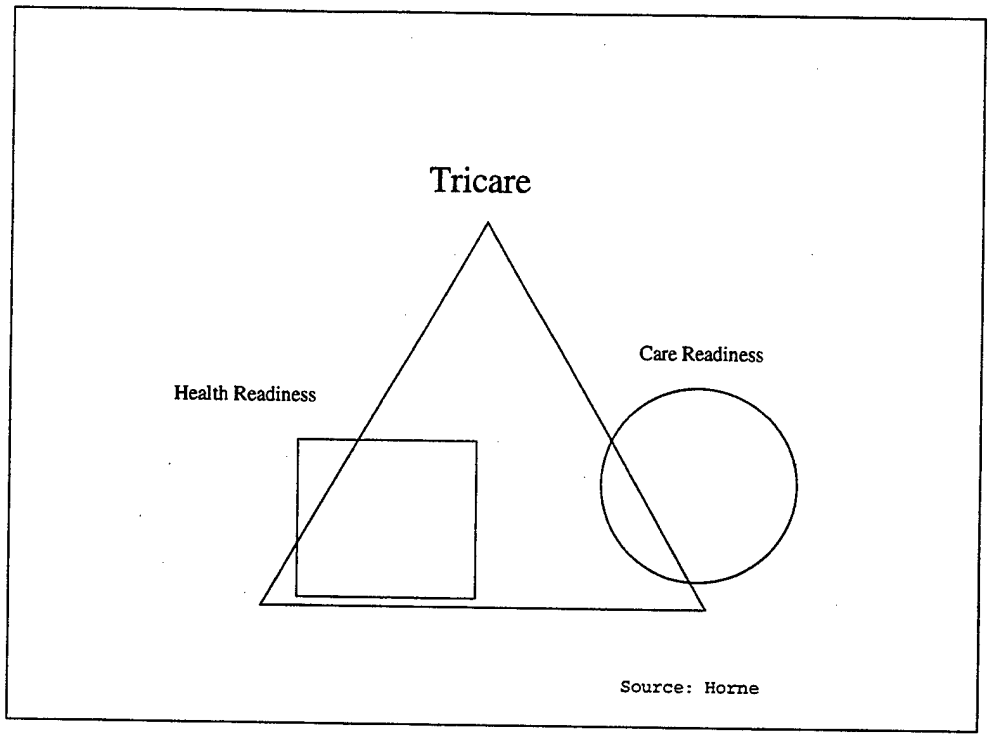


Figure 8. Tricare and Readiness Intersections

The intersection of health readiness and the Tricare triangle represents the health care given to the active duty individual. The part of the square outside the triangle represents care given to individuals who maintain their healthcare outside of Tricare. For health readiness Tricare could have a positive effect. Preventive health measures could mean a healthier service member at the same or lower cost.

The care readiness circle intersecting the Tricare triangle represents the personnel and resources available that are useful in preparing medical personnel for military

deployment. The area outside the triangle represents additional time and money needed to maintain readiness. (Horne 1996)

The tension between Tricare and care readiness is the problem. Since the budgets of military medical treatment facilities are fixed, an increase of resources in one area means a decrease in another. Operating budgets of hospitals are based on the number of patients seen at the hospital. Budgets may be reduced if readiness training displaces patient workload. The commanders of medical treatment facilities lack the incentives to provide readiness training for their personnel because some specific training (such as trauma training) is not part of the total wartime readiness checklist. The MTF commanders would rather meet the peacetime mission and maintain current funding than to send people for training to meet a potential wartime mission. (GAO, 1998)

This type of tension is not new and may not change in the future. Individuals interviewed by Horne stated that Tricare would not have an effect on care readiness. They stated that before Tricare the training opportunities were few and they do not think the new system would provide additional training opportunities. (1996)

B. THE TRAINING OF MEDICAL PERSONNEL

The Gulf War highlighted inadequacies in the training of medical personnel for wartime trauma patients. On the UNHS Mercy only two of the 16 surgeons had recent trauma experience. Over 100 of the corpsman of a surgical support company on the UNHS Mercy had never seen advance trauma life support procedures done on a real trauma patient. (GAO, 1998) Another report by the GAO found that many of the nurses and doctors who were supposedly experienced and competent to handle trauma patients never treated a trauma patient before deployment. Many had not completed the required training to care for trauma patients. (GAO, 1993)

A study done by the Congressional Budget Office indicated that the military services might need to become affiliated with civilian trauma centers to provide the requisite training needed to provide care in a wartime scenario. (CBO, 1995) In the National Defense Authorization Act of 1996, Congress mandated that the DOD implement a demonstration program to assess the feasibility of providing trauma training to military medical personnel. (GAO, 1998)

The study was completed with Naval Medical Center Portsmouth being the test site but the GAO reported that the implementation time required by law was not followed. (1998)

DOD officials cited four reasons for the time delays. First, the program changed ownership during the implementation period. The program was thought to be a peacetime training issue but was then switched to a wartime medical readiness training issue. Second, the DOD reviewed the two military trauma centers (Wilford Hall Medical Center and Brooke Army Medical Center) to evaluate if training could be done at those sites. The centers did not have large enough caseloads for the program to be effective. Third, Health Affairs wanted minimum standards before the implementation the program.

The fourth reason was that officials did not want to interfere with the current agreement between Naval Medical Center Portsmouth and the designated civilian training center (Eastern Virginia Medical School, in conjunction with Norfolk Sentara Hospital). The agreement allowed senior surgical residents of Naval Medical Center Portsmouth to rotate through the civilian training center for three months as trauma team leaders. Officials did not want sustainment training interfering with senior medical residents' training. Senior officials were not concerned with the time delay because they felt the extended time was necessary to develop the program correctly. (GAO, 1998)

Another requirement of the law that was not followed was the exchange of equal value services. Portsmouth officials

did not include equal value services in the memorandum of agreement because they felt the training center would not agree to such an arrangement. The training center officials agreed with the Portsmouth officials. GAO spoke with other trauma training centers on the list to be chosen and asked if they would consider the in kind service agreement. Two centers stated they would not. The other two indicated that they would participate if one of the physicians was an attending physician. (1998)

As of March 1998, the effectiveness of the program was unknown since only a few physicians had rotated through. The ones that have rotated through have stated that the program built their confidence in treating trauma patients. (1998)

Before this project individual military medical hospitals have attempted to provide trauma training for their personnel. The Army has two programs, one in Georgia (limited by lack of funding) and the other in Texas (currently being used by the Defense Medical Readiness Training Institute (DMRTI))(DMRTI website, 1999). In California, the Marines have an agreement with a civilian trauma center to train corpsman. The Navy has attempted sustainment trauma training for surgeons but has had limited long term success. (GAO, 1998)

C. WHO SHOULD WE TRAIN?

Not all military personnel would need trauma training in the event of a war. For example, the Army has over 28,000 medics and predicts that only about 8,500 would be needed to provide initial care to the wounded. (GAO, 1998)

The DOD does not have a system to determine what portion of personnel would require trauma training or the frequency of such training in the event of a contingency operation. (GAO 1998) A system currently in place to track and identify personnel is the Centralized Credentials and Quality Assurance System (CCQAS) which tracks only medical providers (physicians, physician's assistants, and nurse practitioners). The CCQAS does not track other members of the trauma team (nurses, combat medics, and corpsman). No metrics or criteria exist on required medical readiness training so the medical commander's judgement is sole source of verification making the system subjective. (GAO, 1998)

A tri-service information system is under development to monitor all military personnel, whether officer or enlisted and credentialed or noncredentialed. But the system does not track medical personnel (physicians, medics, and corpsmen) in nonmedical treatment facilities such as Marine divisions and fleet surgical support teams. (GAO 1998)

D. HOW SHOULD WE TRAIN?

LCDR John Olsen outlined problems in the training of anesthesia providers in the context of humanitarian and operational readiness. His argument is that the current training programs do not address the issue of the equipment differences during peacetime health care and humanitarian or operational missions. In training, many medical providers use state of the art equipment, which is not available to them during military operations. He equates this with a combat unit using water pistols as a training tool and using M-16s in battle. (1997)

In their assessment of medical capabilities during a joint training exercise, Jerant and Epperly wrote that the medical unit regretted not being more familiar with equipment, supplies and the chain of command. Also, some supplies used were inadequate or outdated. Medics checking patients in to the hospital were not familiar with the forms used, causing some patient data to be lost. (1997)

Another item stated to be unique in the exercise was that it was a multinational contingency. This created problems with crowd control (the media and the military and dignitaries of foreign nations wanting impromptu tours). As more and more operations are joint and multi national, this type of "uniqueness" is likely to be become more of the norm.

Hospital personnel will need to be more cognizant of crowd control, patient privacy, security, and appearance. (Jerant and Epperely, 1997)

The authors attributed many of the problems to the medical unit being activated and tasked on short notice. (Jerant and Epperely, 1997)

E. WHO IS READY TO GO?

Popper et al observed and commented on the status of an Air Force medical teams deployment to Bosnia. They found that over 40 percent of officers and enlisted personnel did not have current physicals. Twenty six percent of the officers and 6 percent of the enlisted had no physical on record. (1997)

In addition to the lack of physicals, "curbside consulting" (getting care with no documentation) revealed individuals who may not have been deployable (individuals were given fluoxetine hydrochloride (Prozac), a common anti depressant). (Popper et al., 1997)

Confidentiality was another problem in the rapid deployment of individuals. Mental health care and family advocacy referrals are not well documented in the military member's medical record. Also, if the active duty member is seen in the civilian sector under Tricare, information that

may be necessary for deployment may not be included in the medical record. (Popper et al., 1997)

Current initiatives within the DOD are underway to decrease the number of personnel non-deployable due to incomplete medical records. The challenge is to keep the costs and workload of these new programs low due to reduced budgets and increased demands of personnel in other areas. (GAO, 1998)

F. DIFFERENT MISSIONS REQUIRE DIFFERENT MEDICAL SUPPORT

Over the past decade the United States military has seen armed conflicts that have called for assistance to the victims (civilian or military) and the security of international relief. Medical units have had limited supplies that the World Health Organization recommends to provide medical care to victims, including medicines and supplies for pediatric and obstetric patients. Pediatricians, obstetricians, and family practitioners are not included in medical personnel deployed. Field hospitals are arranged for the treatment of the trauma patient. Also, the type of foods available was not compatible with emergency food relief. The military did not have enough oil, flour, or water and other basic commodities recommended by the World Health Organization. (Shape et al., 1995)

The increased use of the military in such efforts makes it important to improve humanitarian care. (Sharpe et al, 1995).

G. SUMMARY

The military medical community has several roles. One is to keep the active duty and all eligible beneficiaries healthy. The other is to be ready to provide care to the wounded in times of conflict. These two roles create stress on the medical system because an increase in the amount of training for the wartime role decreases the amount of time available for peacetime medical care.

Training for war is difficult. The types of patients seen are not the types of patients seen during peacetime. There is a limited amount of money, time, and places to train. Many military medical people do not receive the correct training for war.

The emphasis on computer technology during peacetime may decrease the standard of care in a time of war. Computers may not be available and individuals not familiar with paper forms may fill them out incorrectly, losing valuable patient data.

Navy medicine has many issues to deal with in attempting to manage the readiness of its personnel. Many of the issues have been with the military medical community for a long time

and may not be fixed, but other problems can be addressed. Navy medicine has made some strides in attempting to resolve the training issues. The Executive Officer (XO) of a MTF is now the Commanding Officer of the Fleet Hospital (FH) assigned to that MTF. This is to provide incentive to the XO to provide the required training to all personnel. The program is in its infancy stage and no data is available on its effectiveness.

Measuring medical readiness knowing that many personnel are not properly trained or do not have paperwork appropriately filled out is difficult. The inconsistencies may cause improperly trained medical personnel to treat wounded in a combat situation or have an unstable individual deploy, which may cause more stress to an already stressful time.

VI. SUMMARY, CONLUSIONS, AND RECOMMENDATIONS FOR FUTURE STUDY

This chapter briefly summarizes the previous chapters of this thesis. Answers to the questions posed in the beginning of this thesis are outlined. Conclusions and Recommendations for future research are then offered.

A. SUMMARY

This research attempted to evaluate how Navy Medicine measures readiness. The first chapter outlined the background for the rest of the thesis. It discussed the problems that existed in measuring readiness before the end of the Cold War and that continued to exist during Desert Shield and Desert Storm. After Desert Shield and Desert Storm, Congress ordered a study known as the "733 Study." This study concluded that military medical services could be cut in half and would still be capable of providing war time medical care. In response to the "733 Study," the Navy developed a model, called THCSSR-MOSR.

In Chapter II, the "733 Study" and THCSSR-MOSR were examined. Although the "733 Study" evaluated the total military medical system and the THCSSR-MOSR was Navy specific, both concluded that Navy medicine could be reduced. The THCSSR-MOSR produced a less drastic reduction to meet the

needs of the Navy warfighting mission. The DOD accepted the Navy's THCSRR and produce plans to implement the THCSRR. The RAP aligned assets required to meet Navy's wartime mission to MTFs. CHRISM identified the necessary infrastructure to support Navy medical readiness. RFC indicated how the financial resources are provided to build and maintain the force shaped by THCSRR.

Chapter III reviewed the medical readiness guidance provided to Navy medicine. Congress is the ultimate oversight authority and became concerned about readiness after GAO and IG reports outlined deficiencies with readiness. Congress required the DOD to describe the war fighting community's readiness, but did not focus on medical readiness. The ASD(HA) provides oversight authority for medical readiness and produces the MRSP. The MRSP contains policy directives and focuses on the care readiness of the military medical services. The JCS J-4 medical readiness division also provides medical readiness guidance to the military medical community. In a program called Force Health Protection, J-4 aligns military medicine with the war fighter's JV 2010. The FHP offers a vision of wartime medical care. In 1997, Navy medicine created the RROC and several working groups to analyze readiness and take Navy medicine into the 21st century.

Chapter IV analyzed the systems and models used to determine medical readiness. A historical explanation provided the framework for the current models used by DOD, JCS, and Navy medicine. Legacy systems were replaced by faster, more accurate, and user friendly systems. The MAT replaced the medical requirements legacy system, the MPM. The MAT is a union of the MPM and the LPX-MED.

Other readiness models transferred to the new systems were the SORTS and JOPES. SORTS provides readiness indicators and JOPES plans and facilitates military operations. Navy medicine attempted to use SORTS, but found it unsatisfactory. As a result, Navy medicine continues to use the SPMS II. SPMS II provides a readiness assessment of Navy medical units, making it similar to the SORTS. SPMS II is to transfer to the DMHRS in the future, to provide DOD a single solution to managing medical human resource readiness. A home grown readiness program called the Readiness Explorer was also examined. It provided the commander of Naval Hospital Naples a real time view of personnel readiness status.

Chapter five reviewed issues that hinder medical readiness. Four factors affect medical readiness. The first is the dual role of the MHS, the care of beneficiaries and active duty during peacetime and wartime. Training is another factor, i.e., determining who and how to train. The third

factor examines who is actually eligible to deploy. The final factor was how humanitarian missions need changes in the war time structure of the medical services.

B. ANSWERS TO QUESTIONS

The primary thesis question was how Navy Medicine measures readiness. Navy medicine measures and reports readiness by multiple integrated systems within the Navy and with guidance from the JCS and ASD(HA). The systems, THCSRR, RAP, RFC, and SPMS II, have been created and evolving over the last seven years in response to criticisms and studies, especially GAO reports and the "733 Study."

Two questions at the beginning of this thesis were how the SORTS and DMHRS fit within Navy medical readiness. Navy medicine does not use the SORTS system in determining the readiness of their MTFs. They use a different system called the SPMS II, which is to transfer to DMHRS in mid 2000.

The last two questions posed at the beginning of this thesis are related. The questions asked how the MRSP and ASD(HA) affect Navy medicine. The MRSP is created by the ASD(HA) and provides the military medical communities with specific action plans to obtain medical readiness.

C. CONCLUSIONS

Medical readiness is difficult to determine. Navy medicine and the DOD have spent countless hours, money, and manpower over the last decade attempting to determine how the military medical community should measure and report readiness. New war fighting doctrines, critical medical readiness reports and decreasing money and manpower make it essential that all services attempt to find improved measures for medical readiness.

Great strides have been taken within Navy medicine to raise the visibility of readiness and better structure and train the force to achieve it. The RROC and its subordinate task forces give medical readiness a voice and arm to implement initiatives. With an organization as large as Navy medicine, change takes time. Many of the medical readiness programs are less than 5 years old. How well Navy medicine performs in the next conflict will determine if the implemented programs actually work.

C. RECOMMENDATIONS FOR FUTURE STUDY

Almost any topic under military medical readiness can be examined. One area that could be a topic for future research is training. Problems exist with initial and sustainment

training of military medical personnel for their wartime mission. Historically, individuals have had inadequate initial training. (Mamot, 1999) Sustainment training for the wartime mission has difficulties, as mentioned in chapter five. Skills learned in training decay if not used. Finding the correct mix of initial and sustainment training merits future research. Also, predicting the rate of decay for war time skills may prove useful in providing guidance on how often sustainment training should take place.

Another area of future research could be the jointness of military medical care. An analysis of how well the services are developing and implementing joint medical strategy could prove useful. With more focus on joint operations, the necessity of having unified medical support becomes important. Studying current strategies with regard to providing medical care across the services could prove useful.

APPENDIX A: ABBREVIATIONS AND ACRONYMS

AC - Active Component

ASD - Assistant Secretary of Defense

ASD(C^3I) - Assistant Secretary of Defense for Command, Control, communication, and Intelligence

ASD(HA) - Assistant Secretary of Defense (Health Affairs)

BUMED - Bureau of Medicine and Surgery

CINC - Commander in Chief

C4IM - Command, Control, Communications, and Computer Information Management

CJCS - Chairman of the Joint Chiefs of Staff

CONUS - Continental United States

CHAMPUS - Civilian Health and Medical Program of the Uniformed Services

CHRISM - CONUS Healthcare Readiness Infrastructure Support Model

CILSWG - Consolidated Integrated Logistics Support Working Group

CORC - Care of Returning Casualties

DEPMEDS - Deployable Medical Systems

DMHRS - Defense Medical Human Resource System

DISA - Defense Information Systems Agency

FMF - Fleet Marine Force

GAO - General Accounting Office

GCCS - Global Command and Control System

GME - Graduate Medical Education

GSORTS - Global Status of Resources and Training System

HMO - Health Maintenance Organization

HSRS - Health Standard Resources System

ICONUS - Isolated Continental United States

IG - Inspector General

JHSS - Joint Health Services Support

JOPS - Joint Operations Planning System

JOPES - Joint Operations Planning Evaluation System

JCS - Joint Chiefs of Staff

LPX-MED - External Logistics Processor - Medical Model

MAT - Medical Analysis Tool

MEPES - Medical Planning and Execution System

MHS - Military Health System

MHSS - Military Health Service System

MOOTW - Military Operations Other Than War

MOSR - Medical Operational Support Requirement

MPM - Medical Planning Module

MTF - Military Treatment Facility

NBC - Nuclear, Biological, Chemical

OSD - Office of the Secretary of Defense

OCONUS - Outside the Continental United States

PAO - Project Action Officer

PM - Preventative Medicine

RAP - Readiness Alignment Plan

R&D - Research and Development

RFC - Readiness Financed Capitation

SECDEF - Secretary of Defense

SIPRNET - Secure Internet Protocol Router Network

SORTS - Status of Resources and Training System

SPMS II - Standard Personnel Management System

TAD - Temporary Additional Duty

THCSRR - Total Health Care Support Readiness Requirement

WWMCCS - World Wide Military Command and Control System

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